EFFECTS OF TRAIT BEHAVIORAL APPROACH AND INHIBITION SENSITIVITY ON BEHAVIORAL AGGRESSION

A Thesis

by

LAURA CHRISTINE GRAVENS

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

May 2011

Major Subject: Psychology

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Chair of Committee,	Eddie Harmon-Jones
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ABSTRACT

Effects of Trait Behavioral Approach and Inhibition Sensitivity on Behavioral Aggression. (May 2011)

Laura Christine Gravens, B.S., Texas A&M University

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Behavioral approach sensitivity (BAS) has been found to relate to anger contrary to perspectives positing that BAS is only involved in positive emotions. The present study extends this work by examining relations between behavioral aggression and BAS and behavioral inhibition sensitivity (BIS) measures. Forty-three undergraduate participants were socially ostracized to induce anger, and then given an opportunity to behave aggressively. Higher levels of BAS relate to increased aggressive behavior, whereas higher levels of BIS related to decreased aggressive behavior.

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INTRODUCTION: EFFECTS OF TRAIT BEHAVIORAL APPROACH AND INHIBITION SENSITIVITY ON BEHAVIORAL AGGRESSION

Emotions are commonly organized by emotional valence, or whether an emotion feels positive or negative. However, another important dimension is the motivational component behind these emotions. Some emotions, such as determination and desire, are approach motivated emotions – you want to go towards whatever stimulus is viewed as responsible for these emotions. Other emotions are withdrawal motivated emotions, such as fear and disgust – you want to move away from the stimulus that is seen as responsible for those emotions. Many prominent theorists and studies suggest that positive affect is associated only with approach motivation and negative affect is associated only with withdrawal motivation (Gray, 1990; Watson, 2000).

However, there is another body of work which runs counter to this idea. Anger has been found to be associated with approach motivation (for a review, see Carver & Harmon-Jones, 2009). In infant studies, infants who showed greater anger to loss of a reward also showed higher levels of joy and interest (Lewis, Alessandri & Sullivan, 1990**;** Lewis, Sullivan, Ramsey & Alessandri, 1992). Also these infants showed higher task engagement when the reward-giving task was returned, which implies approach motivation. In other research, state anger has been associated with higher levels of physical strength, bravery and self-confidence (Izard, 1991), which are inclinations

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This thesis follows the style of *Journal of Personality and Social Psychology*.

associated with approach motivation. Research in bipolar disorder also supports the idea of anger as an approach motivated emotion. Euphoria and anger often are expressed during the manic episodes of bipolar disorder (Cassidy, Forest, Murry & Carroll, 1998**;** Depue & Iacono, 1989**;** Tyrer & Shopsin, 1982), and a hyperactive approach system may underlie mania (Fowles, 1993).

Anger has also been associated with more relative left prefrontal cortical activity, which is associated with approach motivation. In contrast, emotions associated with withdrawal such as fear and disgust have been associated with more relative right prefrontal cortical activity (Harmon-Jones, 2003). Other work has suggested a move from a positive/negative view of asymmetric frontal cortical organization to an approach/withdrawal motivational view of asymmetric frontal cortical activation (Harmon- Jones & Allen, 1998, Harmon-Jones & Peterson, 2008). According to the motivational directional model, more approach-motivated emotions ("going toward") should evoke more left frontal cortical activity, whereas more withdrawal-motivated emotions ("going away") should evoke more right frontal cortical activity. Research based on this model has examined emotions such as sadness, depression, and fear, which have been found to cause more right frontal activation. Emotions such as joy, excitement, determination and anger have been found to cause more left frontal activation (see review by Harmon-Jones, Gable & Peterson, 2010). In past work on hypomania/mania, individuals with proneness toward hypomania/mania showed greater approach motivation as revealed by greater left frontal activation when confronted with angering stimuli (Harmon-Jones, Abramson, Sigelman, Bohlig, Hogan & Harmon-Jones,

2002). Individuals with proneness towards depression showed greater relative right frontal activation when confronted with the same angering stimuli.

Individual differences may also play a role in approach and withdrawal motivation in expression of anger in the form of aggression. Individual differences in behavioral approach sensitivity (BAS) have been found to be associated with state anger (Carver, 2004) and trait anger and aggression (Harmon-Jones, 2003). In a study by Harmon-Jones and Peterson (2008) the participants were exposed to an angering broadcast and given the opportunity to express willingness to aggress against the broadcaster. Participants were then put into either a high or low approach mindset or a neutral mindset. Trait behavioral approach and manipulated approach motivation interacted to predict aggression. In particular individuals high in trait BAS in the high approach condition were most aggressive. On the basis of these results, Harmon-Jones and Peterson (2008) suggested that "individuals with greater dispositional approach motivation are more likely to show aggressive inclinations toward an insulting person when their approach motivational system has been recently activated" (pg. 1384).

The Present Study

The present study was designed to extend past research by testing whether BAS would be related to behavioral aggression. It was hypothesized that participants who are high in behavioral approach sensitivity would show increased aggression after an angering stimulus, whereas participants high in behavioral inhibition sensitivity would show decreased aggression after an angering stimulus. The prediction, if supported, would extend past research on the relationship between BAS and anger by showing that

individuals high BAS also respond with greater behavioral aggression. Moreover, it would extend past research in a novel direction by testing whether individuals high in BIS show decreased aggression. Past research on BIS and anger has led to mixed results with some studies finding BIS being related to greater anger and other studies finding no relationship between BIS and anger. Aggression, however, differs from anger, in part because there are likely more social and personal inhibitions against expressing aggression than against expressing anger. Therefore, it was predicted that BIS would correlate with decreased aggression.

One effective method of inducing anger, which was used in the current study, is ostracism. Social ostracism or being rejected from a group has been found to increase self-reported anger, which in turn is correlated with greater relative left frontal cortical activity (Peterson, Gravens & Harmon-Jones, 2010). Social ostracism can be achieved by using the game Cyberball, a popular research tool in the study of social ostracism which will be discussed in more detail below (see Williams & Jarvis, 2006). Thus, ostracism should increase anger, which is an approach-motivated emotion. Moreover, ostracism may increase aggression.

Behavioral aggression has often been measured in the lab using the Taylor Aggression Paradigm (Taylor, 1976). In the present study, a modified version of the Taylor Aggression Paradigm, also known as the competitive reaction time task, was used to measure aggression. This paradigm exhibits both high reliability and high external and construct validity among both men and women (Bernstein, Richardson & Hammock, 1987).

METHODS

Participants

Data were collected from 60 right-handed introductory psychology students who participated as part of a course requirement. Eleven participants were removed from the data analysis due to suspicion of purpose of the experiment. Six participants were removed for failure to follow instructions. After these exclusions, data from 43 participants remained. Of the viable participants, 24 were male and 19 were female.

Materials

All participants first played a pre-programmed computer game paradigm called Cyberball. The game was designed so that the participants believed they were playing an electronic ball-tossing game with two other participants. For the first third of the game, participants were included in the ball-tossing game. For the rest of the game, participants were excluded from the game and the two other participants only toss to each other. Participants in past research reported more negative emotions, particularly anger (Williams, 2007), after playing this game, even when they knew the other participants were actually just computer players (Zadro, Williams, & Richardson, 2004).

At the end of the experiment, participants played a modified Taylor aggression game (Taylor, 1976) where they were told they were playing against one of the participants from the previous Cyberball game. This game—the competitive reaction time game—was designed as a reaction time game such that if the participants won, they were allowed to blast their opponent with noise. If participants lost, they were blasted with noise. First, the participants were asked to select a level of noise from 50 decibels

to 100 decibels to deliver to their opponent should they win that particular trial. Next, a fixation cross appeared on the screen. A stimulus cross then appeared on either the right or the left side of the screen and participants were to react quickly by pressing either the right or left shift key, respectively. The participants were then informed by the computer if they won or lost the trial. Participants were led to believe that they won if they had been faster to respond than the other participant. If the participants lost a trial, a noise blast was delivered between 80 and 90 decibels for seven to ten seconds. If the participants won a trial they were asked to press the spacebar for up to ten seconds to deliver a noise blast to the other participant. Win and loss trials were pre-programmed but designed to appear plausible to participants. The participants won ten trials and lost ten trials, and the win and loss trials were randomly distributed across the game. Level of noise in decibels and duration of spacebar press were recorded, as they served as the behavioral measures of aggression.

Self-Report Measures

This study focused on two questionnaires: the BIS/BAS scales (Carver & White, 1994) and a state emotional questionnaire. The BIS subscale contains seven items such as “I worry about making mistakes” and “Criticism and scolding hurts me quite a bit” (Cronbach’s alpha = .73). The BAS scale is divided into three subscales of BAS Reward (Cronbach’s alpha = .73), BAS Drive (Cronbach’s alpha = .73), and BAS Fun (Cronbach’s alpha = .81), and an overall BAS Total score (Cronbach’s alpha = .84). The BAS Reward subscale consists of items such as “When I get something I want, I feel excited and energized” and “When I’m doing well at something, I love to keep at it”.

The BAS Drive subscale consists of items such as “When I want something, I usually go all-out to get it” and “I go out of my way to get things I want”. The BAS Fun subscale consists of items such as “I will often do things for no other reason than they might be fun” and “I crave excitement and new sensations”.

The emotion state questionnaire asked, for example, “To what extent do you feel afraid right now” or “Sad right now.” The emotion state questionnaire was completed both at the beginning and the end of the experiment by the participants. The emotion state questionnaire has 5 subscales: Positive affect (Active, Alert, Attentive, Determined, Enthusiastic, Excited, Interested, Proud and Strong), Negative Affect (Afraid, Scared, Nervous, Guilty and Ashamed), Anger (Angry, Irritated, mad, Frustrated and Hostile), Sadness (Depressed, Hopeless, Sad and Down), and Happiness (Pleasant, Pleased, Calm, Content, Glad, Tranquil, Happy, Good Mood, Joyful and Satisfied). The following Cronbach’s alphas were observed for the time 1 assessment: Positive Affect (.86), Negative Affect (.56), Anger (.87), Sadness (.80), and Happiness (.82). Cronbach’s alphas for time 2 were calculated as well: Positive Affect (.88), Negative Affect (.73), Anger (.94), Sadness (.56), and Happiness (.93).

Procedure

Participants completed the BIS/BAS survey, some other questionnaires not relevant to the present study, and a state emotion questionnaire. The participants then played Cyberball, and then were randomly assigned to watch a short video[1]. After the video, they played the competitive reaction time game. Last they completed the state

emotion questionnaire again, this time in light of how they felt during the previous (competitive reaction time) game.

RESULTS

BIS, BAS, and Aggression

BIS total negatively correlated with both first noise duration choice and average noise duration choice. BIS total was not significantly correlated with either first decibel choice or average decibel choice. BAS total positively correlated with average decibel choice. BAS total did not significantly correlate with first noise duration choice, average noise duration choice, or first decibel choice. BAS Reward negatively correlated with both first noise duration choice and average noise duration choice (Table 1). BIS total and BAS total did not interact to predict aggression on any measure of aggression (p's > .23).

BIS, BAS, and Self-Reported Emotions

Self reported emotions changed over the course of the experiment. Positive Affect and Happiness significantly decreased, while Anger and Negative Affect increased significantly. There was no significant change in Sadness ratings (Table2). There were no significant correlations between BIS and BAS and self reported emotions at time 2 (Table 3). Average decibel choice negatively correlated with Negative Affect at time 2, but no other state emotion measure (Table 4).

DISCUSSION AND CONCLUSIONS

There were interesting correlations with the BIS/BAS scale. Participants were made to be angry with ostracism, and then given an opportunity to aggress. It was found that the individual difference measure of BIS/BAS correlated with how much aggression participants displayed. Higher BIS correlated with decreased aggression (both first noise duration choice and average noise duration), whereas higher BAS correlated with increased aggression (as measured by average decibel choice). These patterns support the hypothesis that behavioral approach sensitivity is associated with increased aggression and that behavioral inhibition sensitivity is associated with decreased aggression. These results conceptually replicate evidence that trait BIS/BAS are associated with trait self-reported aggression (Harmon-Jones, 2003), and extend them by showing that trait BIS and BAS correlate with behavioral aggression measured in the lab. These data support the hypothesis that how one responds to an angering stimulus differs according to one's level of trait approach and inhibition.

In the study by Harmon-Jones and Peterson (2008), a self-reported willingness to aggress was measured, and higher BAS correlated with increased self-reported aggressive inclinations but only when approach motivation was also situationally primed. The current study expands past work by measuring an actual act of aggression and correlating it to trait BIS/BAS. The current work thus yields a more direct connection between BAS and actual expressed aggression, as opposed to a more ambiguous self-reported inclination to aggress. This study additionally used a different

manipulation of anger, namely ostracism in the Cyberball paradigm, than did Harmon-Jones and Peterson (2008).

The current study also expanded upon past work by finding a correlation between BIS and reduced aggression. This finding is new to the literature and allows for an interesting comparison between BIS and BAS, whereby a person's trait approach and trait inhibition sensitivities each play an important role in how the person reacts to angering stimuli. These data have implications for assessing potential aggression risk in a variety of settings.

State emotions did not correlate with BIS or BAS. Negative affect was significantly negatively correlated with average decibel choice. This complements our BIS results, in that participants who are more afraid exhibit less aggression when angered. No other state emotions correlated with measures of aggression. The failure to find other results within the emotional measures is unfortunate, but this failure may have occurred for the following reason. Emotions were measured after aggression, which may have affected self reported emotions. Past research suggests that completing self-reported anger questions can reduce aggression when individuals are angry, perhaps because the completion of the questions increases the awareness of the anger and causes the individual to then control her/his aggression (Berkowitz, 1989). The emotion questionnaire was placed after the aggression measure because aggression was the primary focus variable in this study. Although the present study was unable to replicate past results with self-report emotion measures, the more important and interesting results are the BIS/BAS correlations with behavioral aggression.

The BAS reward subscale, contrary to BAS total, negatively correlated with aggression in this study. In past research, BAS reward has positively correlated with non-aggressive responses (Cooper, Gomez and Buck, 2007). In this past research, it was postulated that this result was a consequence of BAS Reward being correlated with BIS total in that study. The BAS Reward and BIS total variables did not correlate in this study, and further research should be conducted with this subscale to examine them mechanisms of this subscale and how it moderates aggression.

Future studies should examine the relationship of trait BIS and BAS with other forms of aggression. The present study examined offensive aggression. This type of aggression is most commonly measured in anger experiments, and it is offensive aggression that results as a response to angering stimuli. However there is another form of aggression which is referred to as defensive aggression. Defensive aggression, or fear-based aggression, is a response to stimuli in which the fearful response of moving away is removed, and the only recourse is to aggress (see Archer, 2009). This form of aggression has not been studied in the BIS/BAS literature. A consideration of defensive aggression would lead to the prediction that if participants were made to aggress in this manner that higher BIS might lead to greater aggression.

Defensive aggression, however, may be difficult to achieve in a lab-based setting. In a study by Blanchard, Hynd, Minke, Minemoto and Blanchard (2001), self-report measures were used to assess trait defensive aggression. Participants answered questions on 12 scenarios involving a present or potential threat, and participants chose a primary defensive response to each. Other defensive aggression research has examined

defensive aggression via observation in school, or self report of past defensive aggression. Creating an experimental analog of defensive aggression among humans in an experimental lab setting may prove difficult, and past research has not devised a way to go about this.

Although there was some suspicion in this study, steps were taken to assure that any participants with signs of suspicion were removed from the sample. Also, considering that aggression was observed in this sample, the amount of suspicion does not seem to have affected the results. If suspicion had been unacceptably high, we would expect that it would reduce aggression. Therefore, these results are considered valid despite any residual suspicion that may have existed in the sample.

In the future, this research should be repeated with different measures of aggression and different forms of anger-inducing stimuli to expand and validate the results. Also, this study suggests that research in anger and aggression in the future should gather behavioral approach and inhibition sensitivity data to examine if the personality factors of BIS and BAS are a moderating variable in the results.

END NOTES

1. Three videos were used to induce three distinct states, to test whether these states influenced the effect of ostracism on aggression. Results indicated that the videos had no effect on aggression (p's > .39) and thus the videos are not discussed further. A neutral video was composed of pictures of houses. A video composed of pictures of desserts was used to evoke an approach motivated positive emotional state. Lastly, a video of funny cats was used to evoke a positive, low approach motivational state.

REFERENCES

Archer, J. (2009). Does sexual selection explain human sex differences in aggression? *Behavioral and Brain Sciences, 32,* 249-311.

Berkowitz, L. (1989). Laboratory experiments in the study of aggression. In J. Archer & K. Browne (Eds.), *Human aggression: Naturalistic approaches* (pp. 42-61) Florence, KY: Taylor & Frances/Routledge.

Bernstein S., Richardson D., & Hammock, G. (1987). Convergent and discriminant validity of the Taylor and Buss measures of physical aggression. *Aggressive Behavior, 13,* 15-24.

Blanchard, C. D., Hynd, A. L., Minke, K. A., Minemoto, T. & Blanchard R. J. (2001). Human defensive behaviors to threat scenarios show parallels to fear- and anxiety-related defense patterns of non-human mammals. *Neuroscience & Biobehavioral Reviews, 25*, 761-770.

Carver (2004) Negative affects deriving from behavioral approach system. *Emotion, 4,* 3-22.

Carver & Harmon- Jones (2009). Anger is an approach-related affect: Evidence and implications. *Psychological Bulletin, 135,* 183-204.

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology, 67*, 319–333.

Cassidy, F., Forest, K., Murry, E., & Carroll, B. J. (1998). A factor analysis of the signs and symptoms of mania. *Archives of General Psychiatry, 55*, 27–32.

Cooper, A., Gomez, R. & Buck, E. (2007). The relationships between the BIS and BAS, anger and responses to anger. *Personality and Individual Differences, 44,* 403-413.

Depue, R. A., & Iacono, W. G. (1989). Neurobehavioral aspects of affective disorders. *Annual Review of Psychology*, *40,* 457–492.

Fowles, D. C. (1993). Behavioral variables in psychopathology: A psychobiological perspective. In P. B. Sutker & H. E. Adams (Eds.), *Comprehensive handbook of psychopathology 2nd ed.,* (pp. 57–82). New York: Plenum.

Gray, J. A. (1990). Brain systems that mediate both emotion and cognition. *Cognition and Emotion*, *4*, 269–288.

Harmon-Jones (2003). Anger and the behavioral approach system. *Personality and Individual Differences, 35,* 995-1005.

Harmon-Jones, E., Abramson, L. Y., Sigelman, J., Bohlig, A., Hogan, M. E., & Harmon-Jones, C. (2002). Proneness to hypomania/mania symptoms or depression symptoms and asymmetrical frontal cortical responses to an anger evoking event. *Journal of Personality and Social Psychology, 82*, 610–618.

Harmon-Jones & Allen (1998). Anger and frontal brain activity: EEG asymmetry consistent with approach motivation despite negative affective valence. *Journal or Personality and Social Psychology, 74,* 1310-1316.

Harmon-Jones, Gable & Peterson (2009). The role of asymmetric frontal cortical activity in emotion-related phenomena: A review and update. *Biological Psychology, 84,*451-462.

Harmon-Jones & Peterson (2008). Effect of trait and state approach motivation on aggressive inclinations. *Journal of Research in Personality, 42,* 1381-1385.

Izard, C. E. (1991). *The psychology of emotions.* New York: Plenum Press.

Lewis, M., Alessandri, S. M., Sullican, M. W. (1990). Violation of expectancy, loss of control, and anger expressions in young infants. *Developmental Psychology, 26,* 745-751.

Lewis, M., Sullivan, M. W., Ramsey, D. S., & Alessandri, S. M. (1992). Individual differences in anger and sad expressions during extinction: Antecedents and consequences. *Infant Behavior and Development, 15*, 443–452.

Peterson, C., Gravens L., & Harmon-Jones E., Asymmetric frontal cortical activity and negative affective responses to ostracism. *Social Cognitive and Affective Neuroscience*, In Press (2010).

Taylor, S. (1976). Aggressive behavior and physiological arousal as a function of provocation and the tendency to inhibit aggression. *Journal of Personality, 35,* 297-310.

Tyrer, S., & Shopsin, B. (1982). Symptoms and assessment of mania. In E. S. Paykel (Ed.), *Handbook of affective disorders* (pp. 12–23). New York: Guilford Press.

Watson, D. (2000). *Mood and temperament.* New York: Guilford Press.

Williams (2007) Ostracism. *Annual Review of Psychology, 58,* 425-452.

Williams & Jarvis (2006). Cyberball: A program for use in research on interpersonal ostracism and acceptance. *Behavior Research Methods, 38,* 174-180.

Zadro, Williams & Richardson (2004). How low can you go? Ostracism by a computer

is sufficient to lower self-reported levels of belonging, control, self-esteem, and meaningful existence. *Journal of Experimental Social Psychology, 40,* 560-567.

APPENDIX

Table 1
BIS/BAS Correlations with Aggression

	First Noise Press Duration	Average Noise Press Duration	First Decibel Choice	Average Decibel Choice
BIS Total	r = -0.43 p = 0.005	r = -0.44 p = 0.005	r = -0.20 p = 0.21	r = -0.30 p = 0.056
BAS Total	r = -0.003 p = 0.99	r = -0.05 p = 0.74	r = 0.15 p = 0.36	r = 0.32 p = 0.04
BAS Reward	r = -0.42 p = 0.007	r = -0.38 p = 0.02	r = -0.20 p = 0.21	r = -0.17 p = 0.31
BAS Drive	r = 0.08 p = 0.63	r = 0.10 p = 0.54	r = 0.16 p = 0.33	r = 0.28 p = 0.08
BAS Fun	r = 0.03 p = 0.83	r = -0.05 p = 0.76	r = 0.04 p = 0.79	r = 0.22 p = 0.18

Table 1

Table 2

Means, Standard Deviations, and Statistical Differences in Self Reported Emotions from Time 1 to Time 2

	Time 1	Time 2	Emotion Change Significance
Positive Affect	2.97	2.62	$t = -2.79$
	(0.76)	(0.80)	$p = 0.01$
Negative Affect	1.27	1.53	$t = 2.90$
	(0.33)	(0.60)	$p = 0.06$
Anger	1.14	2.29	$t = 7.08$
	(0.36)	(1.16)	$p = 0.00$
Sadness	1.16	1.20	$t = 0.56$
	(0.34)	(0.39)	$p = 0.58$
Happiness	3.11	2.11	$t = -8.14$
	(0.60)	(0.86)	$p = 0.00$

Table 2

Note: Standard deviations are in parentheses.

Table 3
BIS/BAS Correlations with Emotional State Questionnaire at Time 2

	Positive Affect	Negative Affect	Anger	Sadness	Happiness
BIS Total	$r = -0.06$ $p = 0.71$	$r = 0.14$ $p = 0.38$	$r = 0.08$ $p = 0.61$	$r = 0.17$ $p = 0.28$	$r = 0.08$ $p = 0.61$
BAS Total	$r = 0.01$ $p = 0.95$	$r = -0.15$ $p = 0.35$	$r = 0.18$ $p = 0.24$	$r = 0.16$ $p = 0.31$	$r = -0.10$ $p = 0.51$
BAS Reward	$r = 0.05$ $p = 0.75$	$r = 0.25$ $p = 0.11$	$r = 0.02$ $p = 0.91$	$r = 0.16$ $p = 0.32$	$r = 0.08$ $p = 0.61$
BAS Drive	$r = -0.27$ $p = 0.07$	$r = -0.14$ $p = 0.38$	$r = 0.26$ $p = 0.09$	$r = 0.25$ $p = 0.11$	$r = -0.25$ $p = 0.11$
BAS Fun	$r = 0.16$ $p = 0.29$	$r = -0.20$ $p = 0.21$	$r = 0.004$ $p = 0.98$	$r = -0.06$ $p = 0.72$	$r = -0.01$ $p = 0.95$

Table 3

Table 4

Aggression Correlations with State Emotions at Time 2

	Positive Affect	Negative Affect	Anger	Sadness	Happiness
First Duration	$r = 0.16$ $p = 0.32$	$r = -0.13$ $p = 0.43$	$r = -0.06$ $p = 0.97$	$r = 0.05$ $p = 0.75$	$r = -0.02$ $p = 0.90$
Average Duration	$r = 0.06$ $p = 0.74$	$r = -0.20$ $p = 0.21$	$r = 0.04$ $p = 0.80$	$r = 0.03$ $p = 0.86$	$r = -0.11$ $p = 0.49$
First dBc Choice	$r = 0.28$ $p = 0.09$	$r = -0.11$ $p = 0.51$	$r = 0.12$ $p = 0.46$	$r = 0.13$ $p = 0.42$	$r = 0.04$ $p = 0.80$
Average dBc Choice	$r = 0.13$ $p = 0.43$	$r = -0.34$ $p = 0.03$	$r = 0.24$ $p = 0.14$	$r = 0.10$ $p = 0.52$	$r = -0.001$ $p = 0.99$

Table 4

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